

CLAIMS:

1. A method of compressing digital data comprising the steps of:
 - (i) reading digital data as series of binary coded words representing a
5 context and a codeword to be compressed;
 - (ii) calculating distribution output data for the input data and assigning
variable length codewords to the result; and
 - (iii) periodically recalculating the codewords in accordance with a
predetermined schedule, in order to continuously update the codewords and their
10 lengths.
2. A method according to claim 1 in which the codewords are recalculated
each time the number of codewords has doubled.
3. A method according to claim 1 in which the codewords are recalculated
for every new frame of data.
- 15 4. A method according to any preceding claim in which some codeword
space is reserved at each recalculation so as to allow successive new codewords to be
assigned for data of lower frequency.
5. A method of processing digital video information so as to compress it for
transmission or storage, said method comprising:
20 reading digital data representing individual picture elements (pixels) of a video
frame as a series of binary coded words;
segmenting the image into regions of locally relatively similar pixels and locally
relatively distinct pixels;
establishing a reduced number of possible luminance values for each block of
25 pixels (typically no more than four);
carrying out an encoding process so as to derive from the words representing
individual pixels, further words describing blocks or groups of pixels each described as a

single derived word which at least includes a representation of the luminance of a block component of at least eight by eight individual pixels (super-block);

establishing a reduced number of possible luminance values for each smaller block of pixels (typically no more than four);

- 5 carrying out an encoding process so as to derive from the words representing individual pixels, further words describing blocks or groups of pixels each described as a single derived word which at least includes a representation of the luminance of a block component of typically two by two individual pixels (mini-block);

- 10 establishing a reduced number of possible luminance values for each block of pixels (typically one or two);

providing a series of changeable stored masks as a means for indicating which of the possible luminance values are to be used in determining the appropriate luminance value of each pixel for display;

- 15 comparing and evaluating the words representing corresponding portions of one frame with another frame or frames in a predetermined sequential order of the elements making up the groups to detect differences and hence changes;

identifying any of the masks which require updating to reflect such differences and choosing a fresh mask as the most appropriate to represent such differences and storing the fresh mask or mask for transmission or storage;

- 20 using context which will be available the time of decompression to encode the masks, the changes in Y values (luminance), U values (chrominance), and V values (chrominance) and the spatial or temporal gaps between changed blocks, combined with the efficient encoding scheme, to give an efficient compressed real time representation of the video; and

- 25 using variable length codewords to represent the result of transitions.

6. A method according to claim 5 in which the method further comprises an adaptive learning process for deriving a relationship between contextual information and

codewords requiring compression, and a process for dynamically adjusting the relationship so as to optimise the compression rate and the efficiency of decompression.